

REMARKS

Reconsideration of the application, as amended, is respectfully requested.

I. STATUS OF THE CLAIMS

Claims 1-22 are currently pending. Claim 1 has been amended to further clarify that the development of the organometallic layer is made by way of an organic solvent. Claim 2 has been canceled without prejudice.

Support for the above amendment can be found throughout the specification as originally filed. No new matter has been added by virtue of this amendment.

II. 35 U.S.C. 103(a) REJECTIONS

(i) Claims 1-22 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6, 919,931 to Chae ("the Chae patent") in combination with U.S. Patent No. 6,524,663 to Kelly et al. ("the Kelly patent") and U.S Patent Application Publication No. US2003/0124259A to Kudas et al. ("the Kudas publication").

CLAIM 1

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (See MPEP 2143.03; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

In response, it is respectfully submitted that Chae, Kelly and Kudas alone or in combination fails to teach or suggest all of the features recited in claim 1 of the presently claimed invention.

As noted above, claim 1 has been amended to further clarify that the development of the organometallic layer is made by way of an organic solvent.

In particular, the combination of Kelly, Chae and Kodas at the very least fails to teach or suggest a method of forming a metal pattern, wherein an organometallic layer is developed by way of an organic solvent, as essentially recited in claim 1.

Chae at the very least fails to teach or suggest forming a method of forming a metal pattern, wherein an organometallic layer is developed by way of an organic solvent. This point has also been clearly conceded by the Examiner in the instant Office Action. (See pages 3 and 4 of the instant Office Action). Furthermore, the combination of Chae, Kelly and Kodas fails to cure the above deficiency of the Chae patent because Kelly and Kodas also at the very least fail to teach or suggest forming a metal pattern, wherein an organometallic layer is developed by way of an organic solvent, as required by claim 1.

For instance, Kelly at the very least fails to teach or suggest forming a metal pattern, wherein an organometallic layer is developed by way of an organic solvent, as essentially recited in claim 1. In contrast, the only composition or coating in Kelly which contains organometallic compounds is a surface activation coating or composition which may include the metals palladium, platinum, rhodium and iridium. However, this surface activation composition or coating in Kelly is not developed by way of an organic solvent. In Kelly there is no subsequent developing step of the organometallic surface activation coating or composition using an organic solvent after the surface activation composition has been exposed to light as required by claim 1. Rather, in Kelly, right after the organometallic surface activation composition or coating is exposed to light, e.g. UV radiation, a metal is then subsequently deposited by electroless plating. (See col. 8, lines 66-Col. 9, lines 1-5 of Kelly).

Moreover, although Kodas mentions using solvents as part of its precursor compositions, Kodas still fails to teach or suggest forming a metal pattern, wherein an organometallic layer is developed by way of an organic solvent, as essentially recited in claim 1. Rather, in Kodas a solvent may be included in the precursor composition, prior to treatment of this precursor composition with light, e.g., UV light. Kodas, however, is completely silent regarding a subsequent separate developing step using an organic solvent after the precursor composition has already been treated with light e.g. UV light for developing an organometallic layer as required by claim 1.

Therefore, for at least the reasons set forth above, Chae, Kelly and Kodas alone or in combination fails to teach or suggest all of the features recited in claim 1 of the presently claimed invention. Withdrawal of the rejection to claim 1 is therefore respectfully requested. As claims 3, 14, 15 depend from claims 1, withdrawal of the rejection to these dependent claims is likewise requested.

CLAIMS 4, 5, 10 AND 12

In addition, Chae, Kelly and Kodas each individually fail to teach or suggest all of the specific method steps for forming a thin film transistor array panel as recited in claims 4 and 5. Also, Chae, Kelly and Kodas each individually fail to teach or suggest all of the specific elements of the thin film transistor array panel recited in claims 10 and 12.

Furthermore, there is a lack of motivation to combine Chae, Kelly and Kodas as proposed in the instant Office Action with regard to claims 4, 5, 10 and 12. To establish a prima facie case of obviousness, there must be some suggestion or motivation, in the prior art to modify the reference or to combine reference teachings. In addition, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness.

However, the Examiner has failed to meet his burden of showing where in any of the cited references or prior art there is sufficient motivation provided for combining Chae, Kelly and Kodas as proposed in the instant Office Action. In particular, the Examiner has failed to set forth why one skilled in the art would seek to modify the device and methods of Chae by replacing the metal materials (Cu, W, Mo and Cr) and processes used for forming the gate and data lines described in Chae with the methods and materials described in Kelly and Kodas. Rather, the only motivation the Examiner provides for making the above combination is "that it would have been obvious to one of ordinary skill in the art to form silver or Al metal pattern in the invention of modified invention Chae because Kelly gives the choice of using any other suitable metals alternative disclosed materials such as Pd, Pt, Ag. " (See pages 4 and 5 of the instant Office Action).

However, the above motivation stated by the Examiner for making the proposed combination of Chae, Kelly and Kodas as proposed is insufficient because at the very least this statement by the Examiner is an erroneous interpretation of the teachings of the Kelly reference.

Rather, the only organometallic compounds described in Kelly include palladium, platinum, rhodium and iridium. The other metals described in Kelly and referred to in the instant Office Action such as “cu, ni, gold and other suitable metals” are not part of the organometallic surface activation compound of Kelly, but instead these are metals which are subsequently deposited on a desired substrate during an electroless plating step after the exposure of the organometallic surface activation compound has already taken place. (See **columns 7-8 of Kelly**). Thus, contrary to the Examiner’s position, the statement in Kelly regarding use of other suitable metals is not a motivation to one skilled in the art to provide these “other suitable metals” as part of an organometallic complex for forming a metal pattern but rather a teaching to provide these “other suitable metals” as part of a subsequent electroless plating step, which is separate and apart from the organometallic compounds.

In sum, Kelly does not teach what the Examiner states it teaches with regard to providing sufficient motivation to one skilled in the art for combining Chae, Kelly and Kodas as proposed in the instant Office Action. Consequently, as a result, the proposed combination of Chae, Kelly and Kodas cannot be used to reject claims 4, 5, 10 and 12 because at the very least the Examiner has failed to establish his burden of showing that there was sufficient motivation provided in the art for making this combination.

Withdrawal of the rejections to claims 4, 5, 10 and 12 is therefore requested. As claims 6-9 and 16 depend from claim 4, claims 6, 7, 9, 17 and 18 depend from claim 5, claims 11, 19 and 20 depend from claim 10, and claims 21-22 depend from claim 12, withdrawal of the rejection to these dependent claims is likewise requested.

Besides the above-mentioned reasons, claim 6 is even further distinguished from Chae, Kelly and/or Kodas for similar reasons as discussed with regard to claim 1. Namely, Chae, Kelly and/or Kodas each fail to teach or suggest a method for manufacturing a thin film transistor array panel, wherein an organometallic layer is developed by way of an organic solvent

Lastly, it is noted that claims 4, 5, 10 and 12 of the present invention, also solve a long felt need and thus this further weighs against a finding of obviousness of these claims. It is well known that pursuant to the U.S. patent laws, a showing of a long felt-need or the failure of others in an industry to solve a particular difficulty may be used for rebutting obviousness. (See MPEP 2144.05) In particular, in the conventional art there have been difficulties associated with fabricating thin film transistor array panels. (See page 1, lines 29-30 and page 2, lines 1-3 of the present specification). For example, as discussed in the present specification, in the conventional art, the photolithography process is a very complex and high cost process, which is a significant factor in the production cost and time for the TFT array panel. The specification also discusses the long-felt need for being able to reduce the production cost for the TFT array panel while enhancing the productivity thereof and how the number of processing steps related to the photolithography process need to be reduced.

In contrast, with the present invention, as essentially recited in claims 4, 5, 10 and 12, the above difficulties do not occur because, for example, at the very least with the present invention, the methods for manufacturing thin film transistor array panels (e.g. claims 4 and 5) and the thin film transistor array panels (e.g. claims 10 and 12) formed using these methods provide more simplified manufacturing methods and reduced production costs in comparison to the conventional art (See page 12, lines 1-3 and page 17, lines 1-3 of the present specification).

Accordingly, it is clear that the methods for manufacturing thin film transistor array panels (e.g. claims 4 and 5) of the present invention and the thin film transistor array panels (e.g. claims 10 and 12) formed using these methods of the present invention achieve what the conventional art has failed to by providing more simplified manufacturing methods and reduced production costs. Thus, at the very least, due to the failure of others and the long felt need in the art, contrary to the Examiners position, it would not have been obvious to one skilled in the art to provide the methods for manufacturing thin film transistor array panels (e.g. claims 4 and 5) of the present invention and the thin film transistor array panels (e.g. claims 10 and 12) formed using these methods of the present invention for at least the reasons set forth above.

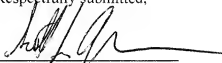
Withdrawal of the rejections to claims 4, 5, 10 and 12 is requested for at least the reasons set forth above. As claims 6-9 and 16 depend from claim 4, claims 6, 7, 9, 17 and 18 depend from claim 5, claims 11, 19 and 20 depend from claim 10, and claims 21-22 depend from claim 12, withdrawal of the rejection to these dependent claims is likewise requested.

III. CONCLUSION:

For the foregoing reasons, the present application is believed to be in condition for allowance. The Examiner's early and favorable action is respectfully requested.

The Examiner is invited to contact the undersigned if he has any questions or comments in this matter.

Respectfully submitted,



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